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showing that the frequent repetition of the process of ethylation had produced, not the *hydriodate* of *triethylic rosaniline*, but the *ethyliodate* of this substance,—a result which appeared particularly welcome, inasmuch as it threw at the same time considerable light upon the degree of substitution which belongs to rosaniline itself.

The facts elicited by the study of the action of iodide of ethyl upon rosaniline open a new field of research, which promises a harvest of results. The question very naturally suggests itself, Whether the substitution for hydrogen in rosaniline of radicals other than methyl, ethyl, and amyl, may not possibly give rise to colours differing from blue; and whether chemistry may not ultimately teach us systematically to build up colouring molecules, the particular tint of which we may predict with the same certainty with which we at present anticipate the boiling-point and other physical properties of the compounds of our theoretical conceptions?

This idea appears to have floated in the mind of M. E. Kopp when, with remarkable sagacity, he concluded his paper on Aniline-red* in the following terms:—"The hydrogen of this substance being replaceable also by methyl, ethyl, and amyl, &c., we may anticipate the existence of a numerous series of compounds, all belonging to the same type, and which might constitute colouring matters either red, or violet, or blue."

Conceptions which only two years ago appeared little more than a scientific dream, are now in the very act of accomplishment.

I propose to continue these researches, and intend in a later communication to submit to the Royal Society the results obtained in the study of two other colouring matters derived from rosaniline, viz. *aniline-green* and *aniline-violet*.

November 26, 1863.

Major-General SABINE, President, in the Chair.

In accordance with the Statutes, notice was given from the Chair of the ensuing Anniversary Meeting, and the list of Officers and Council proposed for election was read as follows:—

President.—Major-General Edward Sabine, R.A., D.C.L., LL.D.

Treasurer.—William Allen Miller, M.D., LL.D.

Secretaries.— { William Sharpey, M.D., LL.D.
 { George Gabriel Stokes, Esq., M.A., D.C.L.

Foreign Secretary.—Prof. William Hallows Miller, M.A.

Other Members of the Council.—James Alderson, M.D.; George Busk, Esq., Sec. L.S.; Col. Sir George Everest, C.B.; Hugh Falconer, M.A., M.D.;

* Ann. de Chim. et de Phys. [3] lxii. 230.

John Hall Gladstone, Esq., Ph.D. ; Joseph Dalton Hooker, M.D. ; Henry Bence Jones, M.A., M.D. ; Prof. James Clerk Maxwell, M.A. ; Prof. William Pole, C.E. ; Archibald Smith, Esq., M.A. ; Prof. Henry J. Stephen Smith, M.A. ; The Earl Stanhope, P.S.A., D.C.L. ; Prof. James Joseph Sylvester, M.A. ; Thomas Watson, M.D., D.C.L. ; Prof. Charles Wheatstone, D.C.L. ; Rev. Prof. Robert Willis, M.A.

The question of Captain Ibbetson's readmission into the Society was put to the ballot, and, the ballot having been taken, Captain Ibbetson was declared to be readmitted.

The following communications were read :—

- I. "Account of Magnetic Observations made between the years 1858 and 1861 inclusive, in British Columbia, Washington Territory, and Vancouver Island." By Captain R. W. HAIG, R.A. Communicated by the President. Received November 4, 1863.

(Abstract.)

This paper contains the results of magnetic observations made between the years 1858 and 1861 inclusive, in British Columbia, Washington Territory, and Vancouver Island. The results are tabulated; and from them the direction and position of the lines of equal dip, total force, and declination or variation are determined.

Three maps at the end show the position of these lines, the stations of observation, and the observed values of the three magnetic elements at each station.

- II. "On Plane Water-Lines." By W. J. MACQUORN RANKINE, C.E., LL.D., F.R.SS.L. & E., Assoc. Inst. N.A., &c. Received July 28, 1863.

(Abstract.)

1. By the term "Plane Water-Line" is meant one of those curves which a particle of a liquid describes in flowing past a solid body when such flow takes place in plane layers. Such curves are suitable for the water-lines of a ship; for during the motion of a well-formed ship, the vertical displacements of the particles of water are small, compared with the dimensions of the ship; so that the assumption that the flow takes place in plane layers, though not absolutely true, is sufficiently near the truth for practical purposes*.

2. The author refers to the researches of Professor Stokes (Camb. Trans. 1842), "On the Steady Motion of an Incompressible Fluid," and of Pro-

* As water-line curves have at present no single word to designate them in mathematical language, it is proposed to call them *Neoids*, from $\nu\eta\acute{o}s$, the Ionic genitive of $\nu\acute{\alpha}\upsilon s$.